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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/440,722	05/05/2015	Leonardo Nappi	452825US118PCT	2731
22850	7590	09/15/2020	EXAMINER	
OBLON, MCCLELLAND, MAIER & NEUSTADT, L.L.P.			NELSON, JAMEL M	
1940 DUKE STREET			ART UNIT	PAPER NUMBER
ALEXANDRIA, VA 22314			1743	
			NOTIFICATION DATE	DELIVERY MODE
			09/15/2020	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte LEONARDO NAPPI
and CLEMENT BESSO

Appeal 2019-004545
Application 14/440,722
Technology Center 1700

Before ADRIENE LEPIANE HANLON, JEFFREY T. SMITH and
JEFFREY R. SNAY, *Administrative Patent Judges*.

HANLON, *Administrative Patent Judge*.

DECISION ON APPEAL

A. STATEMENT OF THE CASE

The Appellant¹ filed an appeal under 35 U.S.C. § 134(a) from an Examiner's decision finally rejecting claims 1–3 and 6–9. Claims 10–15 are also pending but have been withdrawn from consideration. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Philip Morris Products S.A. Appeal Brief dated February 14, 2019 (“App. Br.”), at 2.

The claims on appeal are directed to a filter for a smoking article comprising a filter segment of filter material and a flow restrictor embedded in the filter segment. The Appellant discloses that the flow restrictor is non-compressible, meaning that the flow restrictor is

resistant to compression from any of: manual handling as the smoking article is removed from a pack, digital compression (that is, by a user's fingers on the filter), buccal compression (that is, by a user's lips or teeth on the mouth end of the filter) or the manual extinguishing ("stubbing out") process. That is, the term "non-compressible" is used to mean not deformable or destructible in the normal handling of a smoking article during manufacture and use.

Spec. 4. The Appellant discloses that "[p]referably, the flow restrictor has a compressive strength at a deformation of 10% greater than about 50.0 kPa." Spec. 4.

Independent claim 1 is reproduced below from the Claims Appendix to the Appeal Brief.

1. A filter for a smoking article, the filter comprising:
 - a filter segment of filter material, the filter segment having a diameter measured perpendicular to a longitudinal direction of the filter; and
 - a flow restrictor embedded in the filter segment and surrounded on all sides by the filter material,
 - wherein the flow restrictor is solid, a cross sectional dimension of the flow restrictor measured perpendicular to a longitudinal direction of the filter is between about 60% and about 95% of the diameter of the filter segment, and wherein the flow restrictor is substantially spherical, the cross sectional dimension of the flow restrictor measured perpendicular to the longitudinal direction of the filter being a diameter of the flow restrictor, and
 - wherein the flow restrictor has a compressive strength at a deformation of 10% greater than about 50.0 kPa.*

App. Br. 26 (emphasis added).

The Examiner maintains the following grounds of rejection on appeal:²

- (1) claims 1–3, 7, and 8 under 35 U.S.C. § 103(a) as unpatentable over Thomas et al.;³
- (2) claim 6 under 35 U.S.C. § 103(a) as unpatentable over Thomas in view of Schneider et al.;⁴ and
- (3) claim 9 under 35 U.S.C. § 103(a) as unpatentable over Thomas in view of Li et al.⁵

B. DISCUSSION

The Examiner finds Thomas discloses a smoking article comprising a filter segment of filter material and an object 50 embedded in the filter segment and surrounded by the filter material. Final Act. 3;⁶ *see also* Thomas Figs. 9, 10. The Examiner finds, and the Appellant does not dispute, that object 50 functions as a flow restrictor in Thomas’ smoking article. Final Act. 3.

Thomas discloses that object 50 may be a solid polyethylene bead that acts as a substrate or matrix support for a flavoring agent. Thomas ¶ 69. Alternatively, Thomas discloses that object 50 may be a breakable capsule that carries a flavoring agent and is resistant to the release of the flavoring agent “until the time that the smoker applies a purposeful application of physical force sufficient to rupture the hollow object [i.e., the breakable capsule].” Thomas ¶ 69. In that regard, Thomas discloses that “[t]he smoker can smoke all or a portion of the cigarette with the

² The rejection of claims 1–3 and 6–9 under 35 U.S.C. § 112, second paragraph, as being indefinite has been withdrawn. Examiner’s Answer dated March 21, 2019 (“Ans.”), at 3.

³ US 2007/0068540 A1, published March 29, 2007 (“Thomas”).

⁴ US 5,265,626, issued November 30, 1993 (“Schneider”).

⁵ US 2008/0216848 A1, published September 11, 2008 (“Li”).

⁶ Final Office Action dated June 15, 2018.

object 50 intact.” Thomas ¶ 82. Thus, it appears that Thomas’ object 50, like the Appellant’s flow restrictor, is not deformable during normal handling of the cigarette. *See* Spec. 4 (disclosing that the flow restrictor is “not deformable or destructible in the normal handling of a smoking article during manufacture and use”).

The Examiner, nonetheless, finds Thomas does not disclose that object 50 “has a compressive strength at a deformation of 10% greater than about 50.0 kPa” as recited in claim 1. Final Act. 4. Relying on a document entitled “Compressive Strength Testing of Plastics,”⁷ the Examiner finds that a typical *compressive yield strength* of polyethylene is 20 MPa (20,000 kPa). Final Act. 4.

The compressive yield strength referred to by the Examiner in the NPL document is for high density polyethylene (HDPE). NPL document 1; *see also* App. Br. 11. The Appellant argues that Thomas does not disclose that object 50 is comprised of HDPE and the compressive yield strength disclosed in the NPL document is distinguishable from the compressive strength at a deformation of 10% recited in claim 1. App. Br. 11; *see also* App. Br. 12–13 (arguing that “[t]he NPL document does not provide any disclosure (explicit or inherent) that the identified compressive yield strengths reported therein have been measured under deformation”).

The Appellant defines “compressive strength at a deformation of 10% . . . as the value of uniaxial compressive stress reached when there is a 10% deformation (that is, a 10% change in one cross sectional dimension) of the flow restrictor.” Spec. 4–5; *see also* App. Br. 11 (referring to the definition of “compressive

⁷ Compressive Strength Testing of Plastics, <http://www.matweb.com/reference/compressivestrength.aspx> (last visited August 23, 2017) (“NPL document”).

strength at a deformation of 10%” on pages 4–5 of the Specification). The Appellant defines “compressive yield strength,” on the other hand, “as the value of uniaxial compressive stress reached when there is a permanent deformation of the flow restrictor.” Spec. 4; *see also* App. Br. 11–12 (referring to the definition of “compressive yield strength” on page 4 of the Specification).

The Appellant argues that one of ordinary skill in the art would have expected compressive yield strength to be considerably higher than compressive strength at any deformation. App. Br. 13. Likewise, the Appellant argues that one of ordinary skill in the art would have expected HDPE to have a higher compressive yield strength, as well as a higher compressive strength, than normal polyethylene. App. Br. 13.

In response, the Examiner finds that

the polyethylene taught by Thomas is the genus and the HDPE disclosed in the NPL document is the species. One of ordinary skill in the art would have found it obvious that the species would have similar material properties to that of the genus. HDPE is encompassed by a broad definition of polyethylene.

Ans. 4.

Significantly, the NPL document discloses compressive yield strengths of various materials, not compressive strength at a deformation of 10% as recited in claim 1. The Examiner does not direct us to any evidence showing a relationship between compressive strength at a deformation of 10% and compressive yield strength. Moreover, the NPL document discloses the compressive yield strength of HDPE, not the polyethylene disclosed in Thomas. Although HDPE is encompassed by the genus of polyethylene, the Examiner does not direct us to any evidence establishing that HDPE and the polyethylene disclosed in Thomas have, or would have been expected to have, the same or similar compressive strengths at

a deformation of 10%. *See In re Caveney*, 761 F.2d 671, 674 (Fed. Cir. 1985) (factual determinations by the United States Patent and Trademark Office must be based on a preponderance of the evidence). Thus, in the words of the Appellant, “even if the compressive yield strength value of the NPL document and the claimed compressive strength at 10% deformation were assessed to be comparable, the comparison made by the Examiner would still not be applicable to the object 50 of Thomas [which is composed of polyethylene, not HDPE].” Reply Br. 4–5.⁸

The Examiner also finds that one of ordinary skill in the art would have been motivated to optimize the polyethylene bead disclosed in Thomas “for the purpose of providing an object with high surface area capable of altering the smoke and/or air drawn through the filter element.” Final Act. 4 (citing Thomas ¶ 69). The Appellant, on the other hand, argues that “nothing in Thomas or the NPL document teaches that a compressive strength at 10% deformation of greater than 50.0 kPa would have this effect.” App. Br. 14.

It is well established that “where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456 (CCPA 1955); *see also* Final Act. 4. However, an exception to that rule is where the parameter sought to be optimized was not recognized to be a result-effective variable. *In re Antonie*, 559 F.2d 618, 620 (CCPA 1977).

In order to support the obviousness rejection of claim 1, the Examiner must show that the *compressive strength of object 50 at a deformation of 10%* was known to be a result-effective variable in Thomas’ smoking article. That is, the Examiner must show that the compressive strength of object 50 (e.g., a

⁸ Reply Brief dated May 21, 2019.

polyethylene bead) at a deformation of 10% was known to alter or affect the smoke and/or air drawn through Thomas' filter element. *See* Spec. 4–5 (disclosing that compressive strength at a deformation of 10% is the *value* of uniaxial compressive stress reached when there is a 10% change in one cross sectional dimension of an object). The Examiner does not make such a showing on this record. *See* Ans. 4–5 (generally finding that the “type of material for object 50,” not the compressive strength of that material at a deformation of 10%, “and placement within the filter will determine the surface area and its effect on the mainstream smoke”).

Based on the foregoing, the Examiner has failed to present a *prima facie* case of obviousness. *See In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992) (the Examiner bears the initial burden of presenting a *prima facie* case of unpatentability). Therefore, the obviousness rejection of claims 1–3, 7, and 8 is not sustained.

The Examiner does not rely on Schneider and/or Li to cure the deficiencies of Thomas identified above. Therefore, the obviousness rejections of claims 6 and 9 also are not sustained.

C. CONCLUSION

The Examiner's decision is reversed.

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–3, 7, 8	103(a)	Thomas		1–3, 7, 8
6	103(a)	Thomas, Schneider		6
9	103(a)	Thomas, Li		9
Overall Outcome				1–3, 6–9

REVERSED